30 years in Birmingham

FIP

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Over the past 30 years there have been some advances in our ability to diagnose and treat FIP, although it remains a source of frustration to clinicians due to difficulties in both of these areas.

FIP is caused by infection with feline coronavirus (FCoV). Infection with FCoV is common, especially in multicat households, but only a small minority of infected cats go on to develop the often fatal disease, FIP. Factors contributing to development of FIP include:

- Viral factors — mutations in FCoV may allow it to infect cells more widely and cause FIP
- Host factors — the immune status of the infected cat
- Environmental factors — stress and overcrowding are cited as important factors.

The clinical presentation is variable:

- Vague systemic clinical signs such as malaise, lethargy and pyrexia are common. These signs often wax and wane, gradually progressing over a period of weeks
- 'Wet' (effusive) — formation of effusions in body cavities as a result of vasculitis, typically the most rapid form of disease
- 'Dry' (granulomatous) — formation of inflammatory lesions in body organs including the central nervous system and eyes.

Diagnosis can be challenging, especially in 'dry' cases where obtaining cell or tissue samples may be difficult. Several factors are useful to consider when making a diagnosis.

- Signalment — most commonly young cats with purebred cats being over-represented
- Haematological changes — neutrophilia, lymphopenia and often a mild normocytic normochromic non-regenerative anaemia
- Serum biochemistry — hyperglobulinaemia is common often in combination with a low or low-normal serum albumin. Measurement of acute phase proteins such as alpha-1 acid glycoprotein (AGP) can be helpful — levels are often markedly elevated in cats with FIP, although this finding should not be considered diagnostic. Hyperbilirubinaemia is present in a proportion of cases, especially terminally in those with 'wet' FIP and is often (although not always) present without associated increases in liver enzymes
- Anti-FCoV antibody tests are of limited usefulness. Whilst levels are often high in cats with FIP, they can also be high in cats without FIP and negative results have occasionally been reported in cats with FIP. A positive result confirms exposure to FCoV but may not be useful beyond this

- Analysis of effusions — typically a clear, highly proteinaceous fluid (total protein >35 g/l) of low cellularity (macrophages, neutrophils)
- Histopathology of granulomatous lesions is considered a reliable method of diagnosis but may only be possible postmortem
- Other tests — immunostaining for FCoV antigen in effusions (if sufficient cells) or tissues can be helpful and, where positive in a cat with typical features of FIP, may be sufficient to confirm the diagnosis. Real-time polymerase chain reaction (RT-PCR) for FCoV RNA on effusions and tissue samples may also help increase the suspicion of FIP.

There are no licensed treatments for FIP. Recently studies have shown some promise where compounds including nucleoside analogues, ciclosporin A, protease inhibitors, polypropenyl immunostimulant, anti-feline tumour necrosis factor (TNF)-alpha monoclonal antibodies or recombinant feline interferon were administered.

KEY LEARNING OBJECTIVES

- Describe the clinical presentations that can be associated with feline infectious peritonitis (FIP)
- Understand the diagnostic options and their relative usefulness
- Describe treatment options for FIP

MULTIPLE CHOICE QUESTIONS

1. Which of the following routes of infection is least common for FCoV?
(A) Bite wounds
(B) Contact with infected faeces
(C) Contact with infected saliva
(D) Vertical transmission from a mother to her kittens
2. Which statement about FIP is FALSE?
(A) Around 40% of the cat population has been infected with FCoV
(B) FCoV is very resistant and can survive for up to 6 months in the environment
(C) FIP is commonly fatal
(D) Up to 10% of cats which are infected with FCoV may go on to develop FIP
3. Which of these statements relating to diagnosis of FIP is FALSE?
(A) 50–80% of cats with FIP have a lymphocytosis on haematology
(B) An albumin to globulin ratio of greater than 0.8 helps to rule out FIP
(C) Hyperglobulinaemia is reported in up to 90% of cats with FIP
(D) There is no such thing as an FIP test

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